

Appl No.: 10/661,184

Atty. Dkt. No. UCF-370

**REMARKS/ARGUMENTS**RECEIVED  
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AUG 25 2006

Favorable consideration of this application is respectfully requested. Applicant has amended claims 1, 4, 7, 16, 26, 35 and 45 and canceled claims 11 and 50. Favorable reconsideration of this application is, consequently, earnestly solicited in view of the following remarks. Applicant thanks Examiner for indicating that claims 11, 25, 31, 44 and 50 were objected to as being dependent upon rejected base claims.

In regard to the Information Disclosure Statement, Applicant will provide a substitute IDS and listing of the references.

Applicant notes that the Office Action no longer references a restriction requirement and instead provides a substantive examination of all of the claims. As such, Applicant's amendment response and arguments are being filed with the understanding that the previous restriction has been removed.

Claims 7, 10, 16-17, 24, 26, 30, 35-36, 43, 45 and 49 were rejected under 35 U.S.C. 102(b) as being anticipated by Bigo, U.S. Patent No. 5,911,015. Examiner alleges that Bigo teaches a parametric amplifier (figure 5 NOLM).

Applicant respectfully disagrees. Bigo does not describe "parametric amplification". A NOLM is not a parametric amplifier. A NOLM relies on cross-phase modulation (XPM) in the fiber, a Nonlinear optical effect to produce intensity-to-phase modulation and phase to amplitude conversion in an interferometric structure such as an Optical Loop Mirror. The subject application points out the issue of interferometric stability in the background section on pages 2 and 3.

Unlike Bigo, the subject application teaches parametric amplification which is a nonlinear optical process that requires phase matching while XPM does not. Parametric

Appl No.: 10/661,184

Atty. Dkt. No. UCF-370

amplification involves not only a pump and a signal but also an idler while XPM only involves a pump and a signal.

In regard to claim 7, claim 7 has been amended to include the limitations of dependent claim 11. Examiner stated that claim 11 would be allowable if rewritten in independent form including all of the limitations of the base claims (claim 7) and any intervening claims. Because claim 11 depended directly from independent claim 7, and claim 7 has been amended to include the limitation of claim 7, Applicant believes that independent claim 7, and dependent claims 8-10 and 12-15 are allowable under section 102(b) and requests removal of the rejection.

In regard to claims 16, 17 and 24, independent claim 16 has been amended to clarify that the parametric amplifier is an optical fiber parametric amplifier and that the polarization of the pulsed light source is linear. Claim 16 claims a parametric amplifier in combination with a saturation amplifier, which is different from a NOLM in combination with a saturation amplifier as taught in Bigo. For the reasons provided in regard to claim 7, Applicant believes that amended claim 16 is allowable and that claim 17, which depends from amended claim 16 overcome the section 102(b) rejection. Thus, Applicant requests removal of the rejection.

In regard to claim 26, claim 26 has been amended to clarify the configuration of the 2R regeneration apparatus as described on pages 9, line 23 to page 10, line 6. Claim 26 claims an apparatus using a parametric amplifier. Bigo does not teach the use of a parametric amplifier, therefore, for the reasons provide in regard to independent claims 1 and 7, Applicant believes that amended claim 26 is allowable under section 102(b). Thus, removal of the rejection of claims 26-34 be removed.

Appl No.: 10/661,184

Atty. Dkt. No. UCF-370

In regard to claim 35, claim 35 has been amended to clarify that the polarization of the pulsed light source is linear. Bigo teaches use of a NOLM which relies on cross-phase modulation (XPM) in the fiber, a Nonlinear optical effect to produce intensity-to-phase modulation and phase to amplitude conversion in an interferometric structure such as an Optical Loop Mirror. For this reason, and the reasons provided in regard to claim 7, Applicant believes that amended claim 35 is allowable and that claims 36 and 43 which depend from claim 35 are allowable and respectfully requests removal of the rejection.

In regard to claim 45, Applicant has amended claim 45 to include the limitations of claim 50 and claim 50 has been canceled. Examiner stated that claim 50 would be allowable if rewritten in independent form including all of the limitations of base claim 45, therefore, Applicant believes that amended claim 45 is allowable. Claims 46-49 depend from base amended claim 45, thus removal of the section 102(b) rejection of claims 45 and 49 is requested.

Claims 1-6, 8-9, 12, 18-20, 27-29, 37-39 and 46-48 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bigo again alleging that Bigo teaches a parametric amplifier.

Applicant respectfully disagrees with Examiner allegation. As previously discussed, Bigo does not describe "parametric amplification". The present application teaches and claims a parametric amplifier in combination with a saturation amplifier, which is different from a NOLM in combination with a saturation amplifier. Claim 1 has been amended to clarify that the exponentially amplifying step is accomplished with a piece of fiber with parametric amplification. For the reasons provided, Applicant

Appl No.: 10/661,184

Atty. Dkt. No. UCI-370

believes that claims 1-6 are allowable under section 103(a) over Bigo and requests removal of the rejection.

In regard to claims 8, 9 and 12, claims 8, 9 and 12 depend from base claim 7 which has been amended to include the limitations of dependent claim 11. Because base claim 7 is allowable for the reasons provided, and claims 8, 9 and 12 depend from allowable base claim 7, Applicant believes that claim 7-9 and 12 are allowable and requests removal of the section 103(a) rejection.

In regard to claims 18-20, base claim 16 has been amended to overcome the section 102(b) rejection. Because claims 18-20 depend from amended base claim 16, applicant believes that claims 18-20 are allowable and requests removal of the rejection.

In regard to claims 27-29 which depend from base claim 26, claim 26 has been amended to overcome the section 102 rejection over Bigo. For the reasons provided in regard to base claim 26, Applicant believes claims 27-29 are allowable and requests removal of the section 103(a) rejection.

In regard to claims 37-39, Applicant has amended base claim 35 to overcome the section 102(b) rejection under over Bigo. For the reasons provided in regard to base claim 35, Applicant believes that dependent claims 37-39 are allowable and requests removal of the section 103(a) rejection.

In regard to claims 46-48, Applicant has amended base claim 45 to add all of the limitations of claim 50 to overcome the section 102(b) rejection over Bigo. Because claims 46-48 now depend from allowable base claim 45, Applicant believes that claims 46-48 are allowable and requests removal of the section 103(a) rejection.

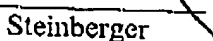
Appl No.: 10/661,184

Atty. Dkt. No. UCF-370

Claims 13-15, 21-23, 32-34 and 40-42 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bigo in view of Watanabe. Bigo does not teach "parametric amplification". A NOLM is not a parametric amplifier. A NOLM relies on cross-phase modulation (XPM) in the fiber, a Nonlinear optical effect to produce intensity-to-phase modulation and phase to amplitude conversion in an interferometric structure such as an Optical Loop Mirror. The present application teaches a parametric amplifier in combination with a saturation amplifier, which is different from a NOLM in combination with a saturation amplifier. Watanabe (6853774) does teach using an SOA as a saturation amplifier. However, independent claims 7, 16, 26 and 35 claim the combination of a parametric amplifier in combination with a saturating SOA. Since claims 13-15, 21-23, 32-34 and 40-42 depend from base claims 7, 16, 26 and 35, for this reason, and the reasons provided in regard to amended base claims 7, 16, 26 and 35, Applicant believes that claims 13-15, 21-23, 32-34 and 40-42 are allowable under section 103(a) over Bigo in view of Watanabe.

In view of the foregoing considerations, it is respectfully urged that claims 1-10 and 12-49 be allowed. Such action is respectfully requested. If the Examiner believes that an interview would be helpful, the Examiner is requested to contact the attorney at the below listed number.

Respectfully Submitted;



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